

CANDIDATE AND LISTING PRIORITY ASSIGNMENT FORM

SCIENTIFIC NAME: Polites mardon

COMMON NAME: Mardon skipper

LEAD REGION: Region 1

INFORMATION CURRENT AS OF: February 2002

STATUS/ACTION (Check all that apply):

☐ New candidate

☒ Continuing candidate

☒ Non-petitioned

☐ Petitioned - Date petition received: ____

☐ 90-day positive - FR date: ____

☐ 12-month warranted but precluded - FR date: ____

____ Is the petition requesting a reclassification of a listed species?

☐ Listing priority change

Former LP: ____

New LP: ____

____ Candidate removal: Former LP: ____ (Check only one reason)

☐ A - Taxon more abundant or widespread than previously believed or not subject to a degree of threats sufficient to warrant issuance of a proposed listing or continuance of candidate status.

☐ F - Range is no longer a U.S. territory.

☐ M - Taxon mistakenly included in past notice of review.

☐ N - Taxon may not meet the Act's definition of "species."

☐ X - Taxon believed to be extinct.

ANIMAL/PLANT GROUP AND FAMILY: Insect; Butterfly; Hesperidae

HISTORICAL STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Washington, Oregon, California

CURRENT STATES/TERRITORIES/COUNTRIES OF OCCURRENCE: Washington, Oregon, California

LEAD REGION CONTACT (Name, phone number): Wendi Weber (503/231-6131)

LEAD FIELD OFFICE CONTACT (Office, name, phone number): Western Washington Fish and Wildlife Office, Ted Thomas (360/753-4327).

BIOLOGICAL INFORMATION (Describe habitat, historic vs. current range, historic vs. current population estimates (# populations, #individuals/population), etc.):

The Mardon skipper (Polites mardon) is a small, nonmigratory butterfly species that was first described by W. H. Edwards (1881). This tawny-orange butterfly has a stout, hairy body. The upper surfaces of the wings are orange with broad dark borders. The lower surfaces are light tan orange, with a distinctive pattern of light yellow to white rectangular spots (Potter et al. 1999).

Females lay eggs in tufts of native bunch grass (Festuca spp.). Larvae emerge in 6–7 days (Newcomer 1966). They feed on grasses, such as Festuca idahoensis and probably other native bunch grasses (e.g., Festuca rubra), although habitat requirements for the species are not fully understood (Potter et al. 1999). Hibernation occurs in the pupal stage, likely in a loose cocoon in the grass (Newcomer 1966). In Washington, adults emerge between May and July for a month-long flight period; emergence dates are earlier at low-elevation Puget Prairie sites than at South Cascades sites. The dispersal distance is not known, but is believed to be limited (Potter et al. 1999).

Adults feed on a variety of nectar sources depending on locale. At one Puget Prairie site, early blue violet (Viola adunca) was the preferred nectar source; other species used included common vetch (Vicia sativa), prairie lupine (Lupinus lepidus), and Idaho blue-eyed-grass (Sisyrinchium idahoense). Scot's broom (Cytisus scoparius), an invasive nonnative plant species, was strongly avoided (Potter et al. 1999). Within the southern Washington Cascades, adults were observed nectaring on vetch (Vicia spp.), penstemon (Penstemon spp.) sego lily (Calochortus spp.), wallflower (Erysimum capitatum), and native bunch grass, including Idaho fescue (Festuca idahoensis) and probably red fescue (Festuca rubra) (Newcomer 1966; Pyle 1989; Potter et al. 1999; Ann Potter, Washington Department of Fish and Wildlife, pers. obs. 2001). During the 2001 surveys, the most common flowers used for nectar by Mardon skippers in habitats near Mt. Adams were Vicia spp. and Fragaria spp. (strawberry) (A. Potter, pers. obs. 2001). Nectar species observations are not available for California and Oregon.

The Mardon skipper is a rare, northwestern butterfly with a remarkably disjunct range. This species is currently known from four widely separated locations: the southern Puget region, the southern Washington Cascades, the Siskiyou Mountains in southern Oregon, and coastal northern California.

On the Puget Prairie, Mardon skippers are found in open, glacial outwash grasslands with abundant Festuca idahoensis interspersed with Viola adunca (Potter et al. 1999). In the southern Washington Cascades, the species is found in small (less than 0.25–4 hectares (ha) (0.5–10 acres (ac))), open grassland sites within Pinus ponderosa (Ponderosa pine) savanna/woodland at elevations ranging from 580–1,555 meters (m) (1,900–5,100 feet (ft)). Site conditions range from dry, open ridgetops to areas associated with wetlands or riparian habitats (Potter et al. 1999).

Oregon populations are on small (less than 0.25–4 ha (0.5–10 ac)), high-elevation (1,372–1,555 m (4,500–5,100 ft)) grassy meadows within mixed conifer forests. The California population is

located on a serpentine bald dominated by Festuca spp. grasses. In each of these areas, frequent low-intensity fires have historically played an important role in maintaining the grassland plant communities.

In Washington, the historic range and abundance of Mardon skippers is not known, and there are no known estimates of abundance prior to 1980. Mardon skippers are apparently extirpated from five historic sites (four in the Puget Prairie and one in the South Cascades) (Potter et al. 1999). Historically, Mardon skippers were collected from Thurston, Klickitat, and Yakima counties. Currently, occupied sites are found in Thurston, Pierce, Klickitat, Skamania, and Yakima counties (Potter et al. 1999).

Puget Prairie. In 1998, 17 individuals were counted on a 100-ha (247-ac) site in Pierce County. In Thurston County, there were an estimated 5–10 adults at one 2 to 4 ha (5 to 10 ac) site, and an estimated 50–80 adults at a second 8 to 12 ha (20 to 30 ac) site. No Mardon skippers were found at four other sites surveyed in 1998 (Potter et al. 1999).

In May and June 2001, two sites were surveyed in Thurston County; no Mardon skippers were detected at one site (40 ha (99 ac)), and 144 Mardon skippers (highest of 3 counts) were detected at the second site (11 ha (26 ac)). Only 12 of 16 sites surveyed in 2000 were occupied in 2001 (Harke 2001).

Southern Washington Cascades. In 1998, Mardon skippers were found at six of eight sites surveyed. More than 100 adults were estimated to occur at one site, but estimates of adults for the other 5 sites ranged from 5–50 (Potter et al. 1999). In 2001, Mardon skippers were documented at 13 of 29 sites surveyed. The number of Mardon skippers observed at occupied sites ranged from 1 or 2 individuals to more than 180 individuals. All of these sites were located near Mt. Adams in the grand fir (Abies grandis) zone. One new site, on the southern slopes of Mt. Adams at 5,600 feet, represents the highest elevation record for the species (Harke 2001).

Southern Oregon, Siskiyou Mountains. There are three or four Mardon skipper sites in southeastern Jackson County, within a 16 kilometer (km) (10 mile (mi)) radius. At one site, an estimated 200 individuals were present in 1991, but that count has not been duplicated in subsequent years. Other sites, most recently visited in 1991, hosted a few individuals (Potter et al. 1999; Paul Runquist, pers. comm., 1998).

Northern California. No surveys were done in 1998, but Mardon skippers were present in 1997. In good years, dozens of individuals are found in the 0.4 to 0.8 ha (1 to 2 ac) core area and along a ridge for 3–5 km (2–3 mi) (Potter et al. 1999); S. Mattoon and K. Hanson, pers. comm., 1998)

THREATS (Describe threats in terms of the five factors in section 4 of the ESA providing specific, substantive information. **If this is a removal of a species from candidate status or a change in listing priority, explain reasons for change**):

A. The present or threatened destruction, modification, or curtailment of its habitat or range.

Because the Mardon skipper is nonmigratory, and thus relatively sedentary, maintaining occupied habitat quality is essential (Ehlich 1992). Pyle (1989) identifies the threats to the Mardon skipper as any factor that degrades its obligate grassland habitats, including development, overgrazing, herbicides, the encroachment or invasion of nonnative and native vegetation, and succession from grassland to forest.

Prairies, which once covered hundreds of thousands of acres of the southern Puget Sound region prior to settlement, have been lost to development, fire suppression, and invasion by native and nonnative plant species. Today, less than 3 percent of the original prairie landscape remains, and much of this has competing human uses (Crawford and Hall 1997).

Invasion and dominance of nonnative plant species into native grasslands is common and has occurred rapidly at several current and historic Mardon skipper sites. Introduced plants threaten the Mardon skipper by directly competing with larval food plants. Many invasive woody shrubs, forbs, and grasses also prevent or obscure access by adults to nectar plants. Invasive, nonnative, sod-forming grasses (such as Holcus spp. and Arrhenatherum elatius), and weedy forbs, including Hypochaeris spp., threaten native bunch grass (Festuca spp.) that Mardon skippers depend on for egg deposition, larval food, and hibernaculum structures. The short character of a Festuca spp. stand allows access for the adult butterfly to its similarly short, native nectar sources. All Mardon skipper sites have not been evaluated for the presence of aggressive, nonnative plants; however, the problem is increasingly common (Potter et al. 1999).

The invasive shrub Scot's broom poses a particular threat to prairies at Puget Prairie sites because of its ability to form dense stands which exclude native grassland species. Parker et al. (1997) found a nearly exclusive relationship between Scot's broom and Festuca idahoensis. Also, due to its highly flammable nature, areas of Scot's broom increase the vulnerability of nearby native plants and butterflies to high-intensity fire. While intensive management appears to be controlling Scot's broom at the two Puget Prairie sites, this management must be continued for the foreseeable future. Unfortunately, Scot's broom control methods, which may include hand pulling, tractor mowing, or burning, can negatively impact Mardon skippers. Some Mardon skipper eggs, larvae, or pupae, which are immobile and on ground-level vegetation, may be harmed by trampling or heat (Ehrhardt 1985; Dana 1991).

Small, roadside meadows are vulnerable to native species removal and nonnative grass introduction when reseeding occurs after road work. Currently, this threat applies to most southern Oregon and several southern Washington Cascade sites. At least one Washington Cascades historic locale and a large portion of a remaining site have been destroyed by this practice (Potter et al. 1999).

Human structures, including roads and trails, logging landings, helicopter pads, buildings, towers, livestock corrals, trail destinations, and campgrounds are often built in forest openings. Construction in these areas results in direct habitat loss and degradation of remaining habitat. In Washington, roads, trails, and buildings have destroyed habitat at one Puget Prairie site. Helicopter landing pads have removed habitat at two Cascade locales. A lookout tower, roads, trails, and buildings are also present at one of these sites. Buildings at two additional Cascade

locales have significantly reduced site size. Roads, trails, and camping areas have destroyed habitat at another. Oregon Siskiyou sites are located adjacent to roads in a highly managed landscape. It is likely, therefore, that these structures and associated human activities threaten Oregon populations as well (Potter et al. 1999)

Small, isolated populations of sedentary insects, such as the Mardon skipper, are vulnerable to fire. Their grassland habitat persisted partly because of repeated, patchy, low-intensity fires. However, large-scale intense fires will be detrimental through direct mortality of individuals and damage to habitat because of the continuous, rather than patchy, coverage of the burn.

Recreational activities, including walking, horseback and off-road vehicle (ORV) use, probably kill some Mardon skippers directly. These activities also degrade habitat by damaging native plants and opening ground cover for invasion by weeds. Two occupied Puget Prairie sites, three southern Cascades sites, and the California population are currently threatened by recreational activities (Potter et al. 1999).

Livestock grazing impacts populations through direct trampling of eggs, larvae, pupae, and adults. Larval and adult food sources are destroyed by consumption by livestock and trampling. The native fescue bunch grasses, essential to Mardon skippers, regenerate by seeds that are likely consumed during grazing. Soil disturbance allows invasion by weeds. Grazing occurs on occupied habitat in the southern Cascades, with a significant negative impact on one site, and in Oregon Siskiyou; however, grazing no longer occurs on occupied sites in the southern Puget region (Potter et al. 1999).

Insecticide application poses a threat to populations in the southern Puget Sound region and Washington Cascades. Bacillus thurengensis is a lepidopteran-specific insecticide that is applied in large-scale, aerial applications to control Asian gypsy moth (Lymantria dispar) in the Puget Sound region and the Washington Cascades to control spruce budworm (Choristoneura occidentalis). This insecticide has been proposed for use in the Washington and Oregon Cascades to control the Douglas-fir tussock moth (Orygia pseudotsugata). Although grasslands are not targeted for application, small meadow or savanna/woodland sites may receive aerial applications due to difficult visibility of small sites and drift of the insecticide. Lepidopteran species, such as the Mardon skipper, that are single brooded, spring-active species with caterpillars actively feeding during the application period for the target species are especially vulnerable (Wagner and Miller 1995). Unless applied with care beyond that required by standard procedures and label directions, Bacillus thurengensis is lethal to the Mardon skipper. Most of the southern cascade Mardon skipper sites have either recently been treated or are proposed for Bacillus thurengensis applications by Federal State, tribal, and private land managers (Wagner and Miller 1995; Potter et al. 1999).

Herbicide use could damage a population by harming larval or adult food sources. One Puget Prairie site and one Oregon population are especially vulnerable; electrical utility lines, where herbicide applications are used to manage vegetation on right-of-ways, cross these sites.

B. Overutilization for commercial, recreational, scientific, or educational purposes.

Insect collecting is a valuable component of research, including systematic work, and is often necessary for documenting the existence of populations. It is, however, a potential threat to insect populations. Rare butterflies, such as the Mardon skipper, are desirable to collectors. Populations that are small and easily accessible, which is true of most Mardon skipper populations, are especially threatened (Potter et al. 1999). However, there are no known collections of this species.

Most Mardon skipper populations are small enough in numbers and area that activities of researchers may pose a threat. Trampling can cause direct mortality, and damage to the habitat may lead to additional mortality.

C. Disease or predation.

Disease and predation may be a threat to populations that are suppressed by other factors, but no examples are known for this species.

D. The inadequacy of existing regulatory mechanisms.

Although there is no Washington State Endangered Species Act, the Washington Fish and Wildlife Commission has the authority to list species and provide protection from direct take. However, species listing in Washington has no associated habitat protection regulation. The Mardon skipper is currently a candidate for listing in Washington, but candidate status within Washington State has no protective measures associated with it.

E. Other natural or manmade factors affecting its continued existence.

Most insect populations experience large fluctuations in size. Weather, predation, and disease may cause annual changes in butterfly numbers of an order of magnitude or more. Small population are acutely vulnerable to extirpation from any one of the threats presented above. Sites from which Mardon skippers are extirpated are unlikely to be recolonized because surviving populations are widely separated and very small, and Mardon skippers are relatively sedentary. Almost all remaining Mardon skipper populations are small and therefore vulnerable to this process (Potter et al. 1999).

BRIEF SUMMARY OF REASONS FOR REMOVAL OR LISTING PRIORITY CHANGE:

FOR RECYCLED PETITIONS:

- a. Is listing still warranted? ____
- b. To date, has publication of a proposal to list been precluded by other higher priority listing actions? ____
- c. Is a proposal to list the species as threatened or endangered in preparation? ____
- d. If the answer to c. above is no, provide an explanation of why the action is still precluded.

LAND OWNERSHIP (Estimate proportion Federal/state/local government/private, identify non-

private owners): Found primarily on Federal lands:

Washington: 1 site Department of Defense (DOD), 1 site Washington Department of Fish and Wildlife, 3 sites, Yakama Indian Reservation, 2 sites private landowners, 1 site USDA Forest Service.

Oregon: 1 site USDA Forest Service, all other sites in the area of checkerboard Bureau of Land Management and private ownership.

California: 1 site with ownership unknown.

PRELISTING (Describe status of conservation agreements or other conservation activities):

Within the Puget Sound prairie ecosystem, the removal of woody shrubs using herbicides, mechanical methods and prescribed burning (DOD lands) has been accomplished.

REFERENCES (Identify primary sources of information (e.g., status reports, petitions, journal publications, unpublished data from species experts) using formal citation format):

Crawford, R. C., and H. Hall. 1997. Changes in the south Puget prairie landscape. Pages 11-16 in P. V. Dunn, and K. Ewing (eds.). 1997. Ecology and conservation of the south Puget Sound prairie landscape. The Nature Conservancy, Seattle, WA. 289 pp.

Dana, R.P. 1991. Conservation management of the prairie skippers Hesperia dacotae and Hesperia ottoe: basic biology and threat of mortality during prescribed burns. U. of Minnesota. Minnesota Agricultural Experiment Station Bulletin 594-1991(AD-SB-5511-S). 62 pp.

Edwards, W. H. 1881. Description of new species of butterflies. Papilio. 1(4):43-48.

Ehrhardt, A. 1995. Diurnal Lepidoptera: sensitive indications of cultivated and abandoned grassland. Journal of Applied Ecology 22:849-861.

Harke, V. 2001. U.S. Fish and Wildlife Service surveys for Mardon skipper in southwestern Washington summary year 2001. Unpublished report submitted to Washington Department of Fish and Wildlife, Olympia. 19 pp.

Newcomer, E. J. 1966. Life histories of three western species of *Polites*. J Res Lepid. 5:243-247.

Parker, I., W. Harpole, and D. Dionne. 1997. Changes in the south Puget prairie landscape. Pages 149-161 in P. V. Dunn, and K. Ewing(eds.). Ecology and conservation of the south Puget Sound prairie landscape. The Nature Conservancy, Seattle, WA. 289 pp.

Potter, A. E., and D. W. Hays. 1998. Fieldwork conducted by Washington Department of Fish

and Wildlife for the critical habitat components of candidate south Puget Sound prairie butterflies - Interim 1998 Field Season. Washington Department of Fish and Wildlife. Olympia.

Potter, A., J. Fleckenstein, S. Richardson, and D. Hayes. 1999. Washington state status report for the Mardon skipper. Washington Department of Fish and Wildlife, Olympia, Washington. 39 pp.

Pyle, R. M. 1989. Washington butterfly conservation status report and plan. Washington Department of Wildlife, Nongame Program, Olympia. 217 pp.

Pyle, R. M. 1978. Observation record from Evergreen Aurelians' northwest lepidoptera survey database. Gray's River, WA.

John Fleckenstein, Zoologist, Natural Heritage Program, Department of Natural Resources, 1111 Washington St. SE, P.O. Box 47016, Olympia, WA 98504-1076.

Ann Potter, Wildlife Biologist, Wildlife Diversity Division, Washington Department of Fish and Wildlife, 600 Capitol Way N, Olympia, WA 98501

LISTING PRIORITY (place * after number)

THREAT			
Magnitude	Immediacy	Taxonomy	Priority
<u>High</u>	Imminent	Monotypic genus	1
		Species	2
		Subspecies/population	3
	<u>Non-imminent</u>	Monotypic genus	4
		<u>Species</u>	<u>5</u> *
		Subspecies/population	6
Moderate to Low	Imminent	Monotypic genus	7
		Species	8
		Subspecies/population	9
	Non-imminent	Monotypic genus	10
		Species	11
		Subspecies/population	12

APPROVAL/CONCURRENCE: Lead Regions must obtain written concurrence from all other Regions within the range of the species before recommending changes to the candidate list, including listing priority changes; the Regional Director must approve all such recommendations. The Director must concur on all additions of species to the candidate list, removal of candidates, and listing priority changes.

Approve: Rowan Gould March 30, 2002
Acting Regional Director, Fish and Wildlife Service Date

Concur: _____
Director, Fish and Wildlife Service Date

Do not concur: _____
Director, Fish and Wildlife Service Date

Director's Remarks: _____

Date of annual review: February 2002
Conducted by: T. Thomas and L.K. Owens

Comments: _____

